1. A method to form, on a reticle, a final pattern of an array of first elements, each of which has an optical thickness, comprising:

forming a first pattern of said array on said reticle;

adding additional second elements, that are between about 50 and 150 % of said first elements, to said first pattern so that one second element is added to each end of each row of said array and one second element is added to each end of each column of said array; and

adjusting said optical thickness for each element whereby any two adjacent elements in a given row and any two adjacent elements in a given column transmit light beams that have a relative phase difference of 180 degrees, thereby forming said final pattern.

2. The method described in claim 1 wherein said elements are rectangles.

3. The method described in claim 1 wherein said elements are circles.

4. The method described in claim 1 wherein said elements represent contact holes.

5. The method described in claim 1 wherein said first pattern contains only one element.

6. The method described in claim 1 wherein the step of adjusting said optical thickness further comprises decreasing thickness for a given element.

7. The method described in claim 1 wherein the step of adjusting said optical thickness further comprises increasing thickness for a given element..

8. A method to form, in a layer of photoresist, an image of an array of first elements, each of which has a linear dimension, comprising:

providing a source of light whose wavelength is within about 200% of said linear dimension;

forming a first pattern of said array on a reticle;

adding additional second elements, that are between about 50 and 150 % of said first elements to said first pattern so that one second element is added to each end of each row of said array and one element is added to each end of each column of said array;

adjusting each element's optical thickness so that any two adjacent elements in a given row and any two adjacent elements in a given column transmit light beams that have a relative phase difference of 180 degrees, thereby forming a second pattern;

using said light source and an imaging system, projecting an image of said second pattern onto said layer of photoresist; and

then developing the photoresist, thereby forming therein an image of said first pattern.

9. The method described in claim 8 wherein said elements are rectangles.

10. The method described in claim 8 wherein said elements are circles.

11. The method described in claim 8 wherein said elements represent contact holes.

12. The method described in claim 8 wherein said first pattern contains only one element.

13. The method described in claim 8 wherein the step of adjusting said optical thickness further comprises decreasing thickness for a given element.

14. The method described in claim 8 wherein the step of adjusting said optical thickness further comprises increasing thickness for a given element.

15. The method described in claim 8 wherein said linear dimension is between about 0.09 and 0.03 microns.

16. A method to form, on a reticle, a final pattern of an array of elements, each of which has an optical thickness, comprising:

forming a first pattern of said array on said reticle;

adding additional elements to said first pattern so that one element is added to each end of each row of said array and one element is added to each end of each column of said array;

adjusting said optical thickness for each element whereby any two adjacent elements in a given row and any two adjacent elements in a given column transmit light beams that have a relative phase difference of 180 degrees, thereby forming a second pattern of an array having open corners;

adding to said second pattern one new element at each of said open corners; and

adjusting said optical thickness for each new element whereby it transmits light having zero phase difference relative to light transmitted by its two closest neighbors.

17. The method described in claim 16 wherein said elements are rectangles.

18. The method described in claim 16 wherein said elements are circles.

19. The method described in claim 16 wherein said elements represent contact holes.

20. The method described in claim 16 wherein said first pattern contains only one element.

21. The method described in claim 16 wherein the step of adjusting said optical

thickness further comprises decreasing thickness for a given element.

22. The method described in claim 16 wherein the step of adjusting said optical thickness further comprises increasing thickness for a given element.

23. A method to form, in a layer of photoresist, an image of an array of elements, each of which has a linear dimension, comprising:

providing a source of light whose wavelength is within about 200% of said linear dimension;

forming a first pattern of said array on a reticle;

adding additional elements, with sizes between 60 % and 95% of those of said first pattern, to said first pattern so that one element is added to each end of each row of said array and one element is added to each end of each column of said array;

adjusting each element's optical thickness so that any two adjacent elements in a given row and any two adjacent elements in a given column transmit light beams that have a relative phase difference of 180 degrees, thereby forming a second pattern;

then adding to said second pattern an extra element at each of said open corners;

adjusting said optical thickness for each extra element to transmit light having zero phase difference relative to light transmitted by its two closest neighbors, thereby forming a third pattern;

using said light source and an imaging system, projecting an image of all of said

first, second, and third patterns, aligned with said first image, onto said layer of photoresist; and

then developing the photoresist, thereby forming therein an image of said first pattern.

24. The method described in claim 23 wherein said elements are rectangles.

25. The method described in claim 23 wherein said elements are circles.

26. The method described in claim 23 wherein said elements represent contact holes.

27. The method described in claim 23 wherein said first pattern contains only one element.

28. The method described in claim 23 wherein the step of adjusting said optical thickness further comprises decreasing thickness for a given element.

29. The method described in claim 23 wherein the step of adjusting said optical thickness further comprises increasing thickness for a given element.

30. The method described in claim 23 wherein said linear dimension of the first pattern

is between about 0.09 and 0.15 microns.

31. A method to form a pattern of elements for transfer to a mask, comprising:

forming on a reticle a primary pattern of primary elements to which phases have been assigned, said primary pattern having vertical and horizontal edges and corners where said edges intersect;

forming a first set of auxiliary elements, on said reticle, disposed to be parallel to said edges and located a fixed distance therefrom;

assigning phases to said auxiliary elements whereby each auxiliary element is assigned a phase that is the opposite of that which had been assigned to a primary element closest to it; and

then forming, on said reticle, a second set of auxiliary elements located at said corners.

32. An array of elements on a reticle, each element having an optical thickness, comprising:

a sub-array of said elements on said reticle, said array having rows, each with two ends, and columns, each with two ends;

first additional elements located, one at each end of each row of said sub-array and one at each end of each column of said sub-array;

said optical thicknesses being such that any two adjacent elements in a given row

and any two adjacent elements in a given column transmit light beams that have a relative phase difference of 180 degrees, said sub-array and said first additional elements forming a second array having open corners;

a second additional element being located at each of said open corners; and

said optical thicknesses being such that each second additional element transmits light having zero phase difference relative to light transmitted by its two closest neighbors.

33. The array described in claim 32 wherein said elements are rectangles.

34. The array described in claim 32 wherein said elements are circles.

35. The array described in claim 32 wherein said elements represent contact holes.

36. The array described in claim 32 wherein said first array contains only one element.

37. The array described in claim 32 wherein a greater depth of focus is achieved, relative to array of the prior art, when said array is used to produce an image of said sub-array.

38. The array described in claim 32 wherein there is less sensitivity to phase errors relative to an array of the prior art that produces an image of said sub-array.

39. A mask, comprising:

a substrate;

a plurality of contact hole patterns on said substrate; and

auxiliary contact hole patterns that encompass said plurality of contact hole patterns.